

# Secretaries earn top honors

Two secretaries recently earned the Marilyn J. Bocking award for secretarial excellence.

Dorothy Childress, secretary to the special assistant for Engineering, Operations and Safety in the Office of the Director, was cited for her outstanding support within the office and the community. Childress also takes on additional duties, such as representing the office on committees and serving as coordinator for the Savings Bond and Combined Federal Campaigns, that make her a valuable asset to the office.

Patricia Collier of the Payload Operations Branch received top honors for her expertise in interpretation and implementation of a myriad of office procedures and protocols. Collier also was cited for her exceptional support of payload operations during missions and her ability to build bridges between people and organizations.

## NEBA rep honored

Carl Arnold the NASA Employees Benefit Association representative was recently honored with a flag flown on a recent shuttle mission. Arnold has served the NASA community for more than 34 years in support of the JSC NEBA chapter.

Arnold has been an agent of Phoenix Home Life Insurance, the company that administers NEBA, for more than 45 years. He has served thousands of JSC employees and military detailees, their families and beneficiaries.

## JSC employees dies

Al Lunde of the Mission Operations Directorate's Flight Design and Dynamics Division died May 9, apparently of complications from heart disease.

Lunde, who came to the U.S. from Norway in 1957, joined NASA in 1966 in the



Childress



Collier



Arnold



Lunde



James

Mission Planning and Analysis Branch. He worked on all of the human space flight programs from Gemini through the International Space Station, developing mission support requirements and development. His most recent work was in mitigating the effects of orbital debris.

He earned the Presidential Medal of Freedom for his work calculating visible star fields for the Apollo 13 astronauts to use in navigating their safe return home along with many other awards during his 30 years at JSC. He is survived by his wife of 30 years, Anne.

Local services were Monday; interment will be in Norway. A memorial has been

established in his name with the American Heart Association.

## Former JSC employee dies

Bennett James, former chief of the Public Services Branch in the Office of Public Affairs, died recently.

James joined NASA in 1962 after serving in the U. S. Air Corps during World War II and the U.S. Air Force. He was a JSC team member for 18 years and earned the NASA Exceptional Service Medal for his participation in the Apollo Soyuz Test Project. At the time of his death, James lived in Kerrville, Texas, and was active within the chamber of commerce and the Air Force Association.

# AIAA hosts technical symposium

The American Institute of Aeronautics and Astronautics will host its 21st annual Technical Symposium from 7:30 a.m.-5 p.m. Thursday at the Center for Advanced Space Studies, 3600 Bay Area Blvd.

The theme of this years' symposium is "New Frontiers through New Technologies, Processes and Paradigms."

"We encourage everyone to participate and derive benefits from this annual event at Houston, said Jayant Ramakrishnan, chairman of the Guidance, Navigation and Control Technical Committee. "It provides an unique opportunity for participants to have a glimpse into the latest developments in the aerospace arena."

The seminar will feature keynote speakers John Muratore, associate director of JSC's Engineering Directorate, and Robert Sackheim, manager of propulsion and combustion center for TRW's Space and Electronics Group.

At 9:15 a.m. sessions on Shuttle-Mir Missions and Robotics; Remote Manipulator Systems; and International Space Station will be offered.

An afternoon session that begins at 1:45 p.m. will include International Space Station: New Results from the Earth Observations and Image Analysis Projects; Advanced Space Systems; Management and Contracting Practices; and Applications of Advanced Analytical Capabilities.

The seminar cost is \$5 for members and \$6 for non-members and includes lunch. AIAA Houston will provide free transportation from Bldg. 1 to the Center for Advanced Space Studies. For more information call Charles Teixeira, x34647, or e-mail cteixeiragp903.jsc.nasa.gov.

# MCC open for STS-77 viewing

The Mission Control Center viewing room will be open to JSC and contractor badged employees and their families during portions of the STS-77 mission.

Employees will be allowed to visit the MCC from 11:30 a.m.-2:30 p.m. Wednesday and 1-5 p.m. May 25.

Employees must wear their badges and escort family members through the lobby of Bldg. 30 South. Children under five will not be permitted. No flash photography or loud talking will be permitted at any time. Because of the dynamic nature of shuttle mission, viewing hours may be changed or canceled without notice.

For the latest information on the schedule, call the Employee Information Service at x36765.



JSC Photo by Mark Sowa

**ASCAN GRADUATION**—After more than a year of extensive training, the 1995 Astronaut candidates are now ready for their first assignment. Graduates from left are Ed Lu, Dom Gorie, Rick Sturckow, Kay Hire, Dave Williams, Mike Anderson, Robert Curbeam, Steve Lindsey, Jim Reilly, Susan Still, Rick Husband, Carlos Noriega, Scott Altman, Pam Melroy, Steve Robinson, Kalpana Chawla, Jeff Ashby, Janet Kavandi, Joe Edwards, Takao Doi, Jean-Loup Chretien, Mike Bloomfield and Michel Tognini.

# Teachers to interact with scientists

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University. Eskridge and Casaburri also will demonstrate how to access NASA materials via the Internet and provide a certification session for those wishing to borrow lunar samples for the classroom. Teachers will have the opportunity to interact with scientists and engineers who will give briefings on various space-related subjects and tours of JSC sites including mission control, International Space Station

and space shuttle mock-ups, and KC-135 and T-38 aircraft. Teachers also will receive free NASA educational curriculum materials, classroom activities, posters, publications, and videos.

Since the number of participants is limited, teachers are advised to apply as soon as possible. For an application or details concerning the workshop, call Mae Mangieri at x32929. Deadline for receipt of applications is May 31.

# JSC employee's children earn college scholarships

The children of three JSC employees have earned JSC Exchange and NASA College Scholarships.

This year's JSC Exchange Scholarship winner is Keith Aaron Hawkins, son of Diane Hawkins from the Human Resources Office. Hawkins will graduate this month from J. Frank Dobie High School. He received credits for premium courses in chemistry, algebra, physics and pre-calculus and has received the Dobie Football Booster Club Scholarship. He was on the Math Relay Team that took first place and he was selected as the Elk's Teen Student of the Month. He plans to attend San Jacinto Junior College this fall to pursue a degree in environmental engineering. He

will receive \$4,000. Selection was based on scholastic achievements, financial need and breadth and substance of school and community activities. This brings the total number of Exchange scholarship awards to date to 77.

Justin M. Lee, son of Raymond James Lee who works in the Business and Information Systems Directorate, and Allison Lanier, daughter of Ronnie Lanier who works in the Mission Operations Directorate, earned NASA College Scholarships.

Lee will graduate this month from Clear Creek High School, ranking first in a class of 482. He will attend the University of Texas this fall to pursue a degree in biochemistry. Lanier will graduate this month

from Dickinson High School, ranking number four in a class of 273. She will attend Southern Methodist this fall to pursue a degree in engineering.

Other winners were Neelaksh Kumar Varshney, son of Marshall Space Flight Center employee Shashi Prabha Varshney; Eric H. C. Liu, son of Goddard Space Flight Center employee Antony Ankuo Liu; and Patricia Augathree Jones, daughter of retired Kennedy Space Center employee Ralph Tompkins. This brings the total number of recipients to date to 68. Twenty-four recipients have graduated since the scholarship fund was established in 1982.

The NASA College Scholarship Fund Inc., board of directors has

determined that five scholarships will be awarded again next year. Each scholarship will be renewable annually for a maximum of \$8,000 over six calendar years.

The Scholarship Fund was established to award scholarships agency-wide to qualified dependents of NASA and former NASA employees. The fund was established as a direct result of a substantial unsolicited gift by noted Pulitzer Prize winning author James A. Michener. Many NASA employees have contributed to the fund directly or through the Combined Federal Campaign. Other major contributors include the Freedom Forum—to honor the Hubble crew members—and the JSC Chapter of the NASA Alumni League.

# Hubble telescope on track for measuring universe

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are coming in between 68 and 78 km/sec/Mpc".

Two months ago, a second team, led by Allan Sandage, also of the Carnegie, reported a slower expansion rate of 57 km/sec/Mpc.

The value of the Hubble Constant allows astronomers to calculate the expansion age of the universe, the time elapsed since the Big Bang. Astronomers have been arguing recently whether the time since the Big Bang is consistent with the ages of the oldest stars.

The ages are calculated from combining the expansion rate with an estimate of how much matter is in space. The younger age values from each team assume the universe is at a critical density where it contains

just enough matter to expand indefinitely. The higher age estimates are calculated based on a low density of matter in space.

"A point of great interest is whether the age of the Universe arrived at is really older than the independently derived ages of the oldest stars," said Abhijit Saha, an investigator on both Hubble teams.

The project team is midway in their three-year program to derive the expansion rate of the universe based on precise distance measurements to galaxies. They have now measured Cepheid distances to a dozen galaxies.

The team also presented an estimate of the distance to the Fornax cluster of galaxies. The Fornax cluster is measured to be about as far

away as the Virgo cluster of galaxies—about 60 million light-years.

The team is measuring Cepheid distances to the Virgo and Fornax clusters of galaxies as a complementary test. The team also is systematically looking into a variety of methods for measuring distances. They are using Cepheids in a large sample to tie into five or six "secondary methods".

In contrast, the Sandage team focused on a single secondary distance indicator, one of the same indicators also used by the other team, the type Ia supernova. Sandage maintains that these stars are "standard bombs" according to theory. He suggests that when they explode they all reach exactly the same intrinsic brightness.

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